

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

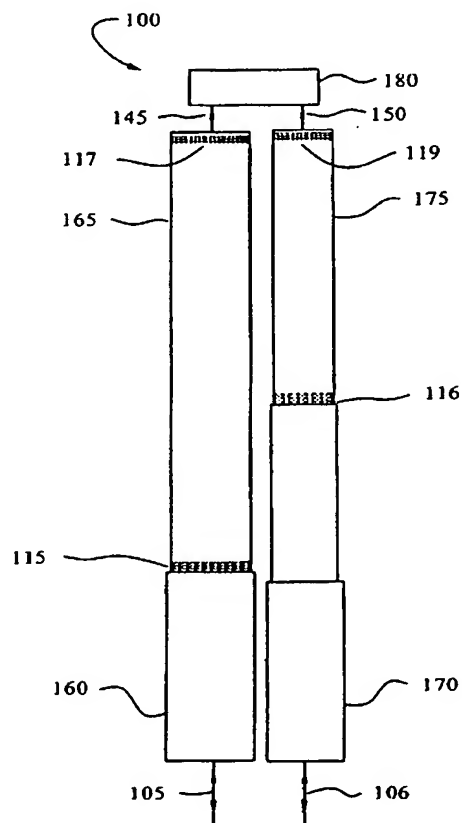
(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number  
**WO 03/060391 A1**

- (51) International Patent Classification<sup>7</sup>: **F25B 9/00**,  
B01D 8/00
- (21) International Application Number: PCT/US03/00389
- (22) International Filing Date: 8 January 2003 (08.01.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/346,676 8 January 2002 (08.01.2002) US
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,

[Continued on next page]

(54) Title: **WIRED AND WIRELESS METHODS FOR CLIENT AND SERVER SIDE AUTHENTICATION**

(57) Abstract: An integrated cryopump and 2 stage pulse tube refrigeration system (100) comprising a cryopump, a compressor for a pulse tube refrigerator, a pulse tube refrigerator located within the vacuum chamber of the cryopump where the hot ends of the pulse tubes (165,175) are connected to each other through a buffer volume (180), are integral to the cryopump vacuum chamber housing, and a buffer volume (180) is connected to the hot ends (117,119) of the pulse tubes (165,175) through flow restrictors (145,150).

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